



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/797,719	03/10/2004	Toshimitsu Hirai	9319S-000729	4111
27572	7590	03/03/2008	EXAMINER	
HARNESS, DICKEY & PIERCE, P.L.C.			TADAYYON ESLAMI, TABASSOM	
P.O. BOX 828			ART UNIT	PAPER NUMBER
BLOOMFIELD HILLS, MI 48303			1792	
MAIL DATE		DELIVERY MODE		
03/03/2008		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>
	10/797,719	HIRAI ET AL.
	<b>Examiner</b> TABASSOM TADAYYON ESLAMI	Art Unit 1792

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1)  Responsive to communication(s) filed on 10 March 2004.
- 2a)  This action is FINAL.      2b)  This action is non-final.
- 3)  Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4)  Claim(s) 1-9, 12 and 13 is/are pending in the application.
  - 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5)  Claim(s) \_\_\_\_\_ is/are allowed.
- 6)  Claim(s) 1-9, and 12- 13 is/are rejected.
- 7)  Claim(s) \_\_\_\_\_ is/are objected to.
- 8)  Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9)  The specification is objected to by the Examiner.
- 10)  The drawing(s) filed on \_\_\_\_\_ is/are: a)  accepted or b)  objected to by the Examiner.
 

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11)  The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12)  Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a)  All    b)  Some \*    c)  None of:
    1.  Certified copies of the priority documents have been received.
    2.  Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3.  Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1)  Notice of References Cited (PTO-892)
- 2)  Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3)  Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date See Continuation Sheet
- 4)  Interview Summary (PTO-413)  
Paper No(s)/Mail Date, \_\_\_\_\_.
- 5)  Notice of Informal Patent Application
- 6)  Other: \_\_\_\_\_.

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :03/13/07, 09/20/07, 06/16/04, 03/10/04.

**DETAILED ACTION**

***Election/Restrictions***

1. Claim 10-11 and 14-16 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on Dec. 12, 2007.

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.  
(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

2. Claims 1 and 12 rejected under 35 U.S.C. 102(b) as being anticipated by Alfred I-Tsung Pan (U. S. Patent: 6501663, here after Pan).

Pan teaches,

A pattern forming method of forming film patterns (3-D interconnect system) [abstract lines 1] by arranging droplets of a liquid material on a substrate [abstract lines 3-6], comprising: defining a plurality of pattern forming areas, in which the film patterns are to be formed, on the substrate [153, 155 and 157 in fig. 15] the areas including: a first pattern forming area in which the film pattern is to be formed from a side thereof [153 in fig. 15] and a second pattern forming area in which a film pattern is to be formed

from the center thereof [ 155 in fig. 15]; and arranging the droplets in each of the first and second pattern forming areas to form the first patterns [ fig. 15, column 10 lines 11-16].

Claim 12 is rejected. Pan teaches,

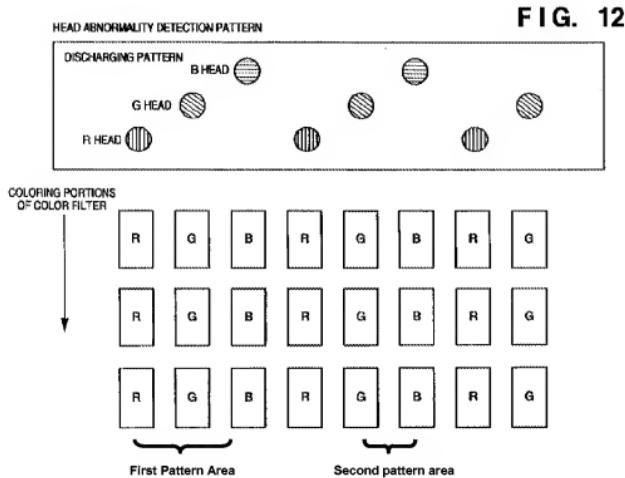
A method of manufacturing a device having wiring patterns, the method comprising: a material arranging step of forming the wiring patterns by arranging droplets of a liquid material in each of a plurality of pattern forming areas which are arranged and defined on the substrate and in which the wiring patterns are to be formed [abstract], where in the material arranging step a first pattern forming area (153+155 in fig. 15) in which a pattern is to be formed from one side thereof and a second pattern forming area (155+157 in fig. 15) in which the pattern is to be formed from the center thereof are defined in the plurality of pattern forming areas, and the droplets are arranged in each of the first and second pattern forming areas to form the wiring patterns [ fig. 15].

3. Claim 7 is rejected under 35 U.S.C. 102(b) as being anticipated by Makoto Akahira et al, (U. S. Patent: 6145981, here after 981).

Claim 7 is rejected. 981 teaches,

A pattern forming method of forming film patterns by arranging droplets of a liquid material on a substrate [ abstract, also fig. 12 (below)], the method comprising, when a plurality of the film patterns are arranged and formed on the substrate: a first step of forming a first area ( mark on fig. 12) of a first film pattern of the plurality of film patterns (R ); a second step of forming a first area of a second film pattern (G)at the same time as forming a second area of the first film pattern; and a third step of forming

a second area of the second film pattern (B) at the same time as forming a third area of the first film pattern [ fig. 12]. He also teaches the polarity of nozzles (304 fig. 52C) ejects the ink to print specific pattern area (color) on the surface.



4. Claims 1-2, 4-5 are rejected under 35 U.S.C. 102(a) as being anticipated by S. Nakamura et al (U. S. Patent Application: 2003/0184613, here after 613).

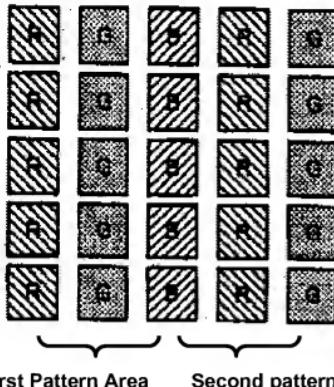
Claim 1 is rejected. 613 teaches,

A pattern forming method of forming film patterns by arranging droplets of a liquid material on a substrate ( printing with an ink jet printer) [abstract lines 1-3], comprising: defining a plurality of pattern forming areas, in which the film patterns are to be formed, on the substrate [fig. 8A] the areas including: a first pattern forming area ( marked on the figure) in which a film pattern is to be formed from a side thereof ( forming the red

line); and a second pattern forming area ( marked in the figure) in which a film pattern is to be formed from the center thereof (forming the red line); and arranging the droplets in each of the first and second pattern forming areas to form the film patterns [fig. 8A]. In fact by printing the red lines, the side of the first area and the center of the second area forms.

Fig. 8A

STRIPE



Claim 2 is rejected. 613 teaches the limitation of claim 1 and he further teaches the method comprises a step of substantially simultaneously arranging the droplets in the first (side part of the first area, Red) and second pattern forming areas (central part of the second area, Red) [fig. 8A].

Claim 4 is rejected. 613 teaches the limitation of claim 1 and he further teaches, in the first pattern forming area, the side is first formed (Red) and then the central

portion is formed (Green), and in the second pattern forming area, the central portion is first formed (Red) and then the side is formed(Green)[ Fig. 8A].

Claim 5 is rejected. 631 teaches the limitation of claim 1 and he further teaches, a plurality of discharge portions for arranging the droplets are provided corresponding to the first and second pattern forming areas, and the droplets are arranged while moving the discharge portions in the direction in which the pattern forming areas are arranged [printing the color lines along the proposed line].

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over S.

Nakamura et al (U. S. Patent Application: 2003/0184613, here after 613).

Claim 3 is rejected. 613 teaches the limitation of claim 1 as discussed above. Although 613 teaches arranging the droplets in first and second areas simultaneously, but in general splitting of one step into two, where the processes are substantially identical or equivalent in terms of function, manner and result was held to be not patentable distinguished the processes. *Ex parte Rubin*, 128 USPQ 440(Bd. Pat. App. 1959). Therefore it would have been obvious to one of ordinary skill in the art at the time of invention was made to have a method the pattern forming method that 613 teaches

Art Unit: 1792

where the green line is printed first in first pattern area and then in the second pattern are (not simultaneously), because the result of the process is the same as printing the green line simultaneously in both areas.

7. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over by Makoto Akahira et al, (U. S. Patent: 6145981, here after 981).

981 teaches the limitation of claim 7 as discussed above. Although 918 teaches arranging the droplets in first and second areas simultaneously, but in general splitting of one step into two, where the processes are substantially identical or equivalent in terms of function, manner and result was held to be not patentable distinguished the processes. *Ex parte Rubin*, 128 USPQ 440(Bd. Pat. App. 1959). Therefore it would have been obvious to one of ordinary skill in the art at the time of invention was made to have a method the pattern forming method that 613 teaches where only the red line in the first area is first printed (separately) and then (second step), green lines are printed simultaneously. In the next step (third step), the blue lines are printed simultaneously in both first and second areas. In the four step a single red line is printed as the third area of the second pattern, first in first pattern area and then in the second pattern are (not simultaneously), because the result of the process is the same as printing the green line simultaneously in both areas.

8. Claims 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over S. Nakamura et al (U. S. Patent Application: 2003/0184613, here after 613), Further in view of Makoto Akahira et al, (U. S. Patent: 6145981, here after 981).

Claim 6 is rejected. 613 teaches the limitation of claim 1. He does not teach a step of forming a side of the first film and then forming the central portion of the second film pattern at the same time forming the other side of the first pattern. 981 teaches a method of forming a pattern areas on a substrate( via ink jet printer) and he further teaches, a step of forming one side of a first film pattern to be formed in the first pattern forming area (R, fig.12); a step of forming a central portion of a second film pattern to be formed in the second pattern forming area (B) at the same time as forming the other side of the first film pattern; and a step of forming one of one side and the other side of the second film pattern at the same time as forming a central portion of the first film pattern (G).

Therefore it would have been obvious to one of ordinary skill in the art at the time of invention was made to have a method of manufacturing a device comprises patterns according to what 613 teaches where the steps of applying the different ink are as 981 teaches, because 981 teaches it is appropriate to form a pattern comprising different areas via ink jet printer.

9. Claims 7, 9 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Alfred I-Tsung Pan (U. S. Patent: 6501663, here after Pan), further in view of S. Nakamura et al (U. S. Patent Application: 2003/0184613, here after 613).

Claim 7 is rejected. Pan teaches,

A pattern forming method of forming film patterns by arranging droplets of a liquid material on a substrate [ abstract], the method comprising, when a plurality of the film patterns are arranged and formed on the substrate [ fig. 15]: a first step of

forming a first area ( 155) of a first film pattern (153+155, fig. 15) of the plurality of film patterns (153+155+157, fig. 15 ); a second step of forming a first area (157, half of the line) of a second film pattern (157) and forming a second area of the first film pattern (153, half of the line); and a third step of forming a second area of the second film pattern (157, the other half part) and forming a third area of the first film pattern (153, the other half)[ fig. 15]. He does not specifically teaches forming the first area of the second pattern and second area of the first pattern happens simultaneously as well as forming the second area of the second film pattern and third area of the first pattern. 613 teaches a pattern forming method of forming film patterns by arranging droplets of a liquid material on a substrate ( printing with an ink jet printer) [abstract lines 1-3], where the plurality of the lines are print simultaneously [ fig. 52]. Therefore it would have been obvious to one of ordinary skill in the art at the time of invention was made to have a method of manufacturing a device comprises patterns according to what Pan teaches where the step of printing lines 153 and 157 happens simultaneously as 613 teaches, because it helps to save the time in printing process.

Claim 9 is rejected. Pan and 613 teach the limitation of claim 7 as discussed above and Pan further teaches the liquid material comprises conductive particles [column 10 lines 11-15, lines 49-52].

Claim 13 is rejected for the same reason claims 7 and 12 are rejected above.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tabassom T Tadayyon-Eslami whose telephone number is 571-270-1885. The examiner can normally be reached on 7:30-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Cleveland can be reached on 571-272-1418. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

T.T

/Michael Cleveland/  
Supervisory Patent Examiner, Art Unit 1792